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Attorney Docket No. P24073

**Mail Stop Appeal Brief-Patents**

In re application of : Masato YOSHINO et al.

Application No : 10/671,669

Group Art Unit: 3683

Filed : September 29, 2003

Examiner : Lan NGUYEN

For : BRAKE SYSTEM AND BRAKE DEVICE FOR USE WITH AUTOMOBILES

**Mail Stop Appeal Brief-Patents**

Commissioner for Patents

U.S. Patent and Trademark Office

Customer Service Window, Mail Stop Appeal Brief-Patents

Randolph Building

401 Dulany Street

Alexandria, VA 22314

Sir:

Transmitted herewith is an **Appeal Brief Under 37 C.F.R. § 41.37** in the above-captioned application.

☐ Small Entity Status of this application under 37 C.F.R. 1.9 and 1.27 has been established by a previously filed statement.

☐ A verified statement to establish small entity status under 37 C.F.R. 1.9 and 1.27 is enclosed.

☐ An Information Disclosure Statement, PTO Form 1449, and references cited.

☐ No additional fee is required.

The fee has been calculated as shown below:

Claims After Amendment	No. Claims Previously Paid For	Present Extra	Small Entity		Other Than A Small Entity	
			Rate	Fee	Rate	Fee
Total Claims: 3	*20	0	X25=	\$	x 50=	\$0.00
Indep. Claims: 1	**3	0	X100=	\$	X200=	\$0.00
Multiple Dependent Claims Presented			+180=	\$	+360=	\$0.00
Appeal Brief fee				\$		\$500.00
Total:				\$	Total:	\$500.00

☐ Please charge my Deposit Account No. 19-0089 in the amount of \$\_\_\_\_\_.

☒ A Check in the amount of \$500.00 to cover the filing fee(s) is included.

☒ The U.S. Patent and Trademark Office is hereby authorized to charge payment of the following fees associated with this communication or credit any overpayment to Deposit Account No. 19-0089.

☒ Any additional filing fees required under 37 C.F.R. 1.16.

☒ Any patent application processing fees under 37 C.F.R. 1.17, including any required extension of time fees in any concurrent or future reply requiring a petition for extension of time for its timely submission (37 CFR 1.136)(a)(3).

*[Signature]*  
Bruce H. Bernstein  
Reg. No. 29,027

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**Reg. No. 48,214**



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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : M. YOSHINO et al.

Art Unit: 3683

Serial No : 10/671,669

Examiner: Lan NGUYEN

Filed : September 29, 2003

For : BRAKE SYSTEM AND BRAKE DEVICE FOR USE WITH AUTOMOBILES

**APPEAL BRIEF UNDER 37 C.F.R. § 41.37**

Commissioner for Patents  
U.S. Patent and Trademark Office  
Customer Window, Mail Stop Appeal Brief - Patents  
Randolph Building  
401 Dulany Street  
Arlington, VA 22314

Sir:

This appeal is from the decision of the Examiner finally rejecting claims 1-3 as set forth in the Final Official Action of September 19, 2005.

A Notice of Appeal in response to the Final Official Action of September 19, 2005, was filed on January 19, 2006, along with a request for a one month extension of time. The two-month statutory period for response was set to expire on March 20, 2006 (March 19, 2006 being a Sunday). Further, the instant Appeal Brief is being submitted together with a check including the requisite fee under 37 C.F.R. § 41.20(b)(2) in the amount of \$500.00 for the filing of the Appeal Brief.

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However, if for any reason the necessary fee is inadequate or is not associated with this file, the Commissioner is authorized to charge the fee for the Appeal Brief and any necessary extension of time fees to Deposit Account No. 19-0089.

A Pre-Appeal Brief Request for Review was filed on January 19, 2006, and a Notice of Panel Decision from Pre-Appeal Brief Review was mailed out on February 14, 2006.

Appellants respectfully request that the decision of the Examiner to reject claims 1-3 as set forth in the Final Rejection be reversed and that the application be returned to the Examining Group for allowance.

**(1) REAL PARTY IN INTEREST**

The real party in interest is Sumitomo Electric Industries, Ltd., as established by an assignment submitted in parent U.S. Application No. 09/868,633 and recorded in the U.S. Patent and Trademark Office on September 10, 2001, at Reel 012155, Frame 0246.

**(2) RELATED APPEALS AND INTERFERENCES**

Appellants are presently not aware of any other appeals and/or interferences which will directly affect or be affected by or have a bearing on the Board's decision in the present Appeal.

**(3) STATUS OF THE CLAIMS**

Claims 1-3 are on appeal and stand finally rejected. A copy of claims 1-3 is attached as an Appendix to this brief.

Claim 1 stands finally rejected under 35 U.S.C. § 102(b) as being anticipated by TAKATA (U.S. Patent No. 5,031,968). Claims 2 and 3 stand finally rejected under 35 U.S.C. § 103(a) as being unpatentable over TAKATA (U.S. Patent No. 5,031,968) in view of LEIBER et al. (U.S. Patent No. 4,603,918).

**(4) STATUS OF THE AMENDMENTS**

No amendments to the claims were filed under 37 C.F.R. § 1.116 after the Final Official Action of September 19, 2005. A Response under 37 C.F.R. § 1.116 filed on November 21, 2005, included a replacement Abstract, which the Examiner indicated would be entered for purposes of appeal, in the Advisory Action dated December 9, 2005.

**(5) SUMMARY OF CLAIMED SUBJECT MATTER**

The summary below is intended as a nonlimiting example of the claimed invention, and no estoppel should be deemed to extend therefrom. As such, the following description is merely exemplary and is not a surrender of other aspects of the present invention that are also enabled by the present specification and that are directed to equivalent structures or methods.

An exemplary embodiment of the present invention is a braking system which includes an accumulator 36 for pressurized braking liquid, which is supplied to a wheel 10 by a proportional pressure control valve 110 having a spool 52, as depicted in Figure 8. The braking system also includes a brake pedal 1, a stroke sensor 120, and a push rod 118, 118a connected to the brake pedal 1, as depicted in Figures 8, 9a and 9b. The push rod 118, 118a moves between positions spaced from, and contacting, the spool 52 of the proportional pressure control valve 110 (page 43, line 1 through page 46, line 14). Appellants note that certain elements of the embodiments depicted in Figures 8, 9a and 9b are discussed in other portions of the specification with reference to other embodiments, such as those depicted in Figures 1, 2 and 5.

Claim 1 includes a brake pedal 1, a stroke sensor 120 that outputs a stroke signal in response to a stroke of the brake pedal 1, an accumulator 36 that accumulates a pressurized braking liquid; a proportional pressure controller 110 that controls the pressure of the pressurized braking liquid, and supplies the pressurized braking liquid to a wheel 10 (page 43, lines 10-15), the proportional pressure controller 110 including a spool 52; and a push rod 118, 118a connected to the brake pedal 1 and movable between a first position spaced from the spool 52 and a second position contacting the spool 52, wherein the push rod 118, 118a moves in response to the stroke of the brake pedal 1 in order to contact and push the spool 52 (page 43, line 16 through page 44, line 5; page 44, lines 9-13; page 44, line 16 through page 45, line 2; page 45, lines 9-17); wherein the proportional pressure controller 110 controls the pressure of the pressurized braking liquid in accordance with the stroke signal and free from the motion of the push rod 118, 118a before the push rod 118, 118a contacts and pushes the spool 52, and in accordance with the stroke signal and the motion of the push rod 118, 118a after the push rod 118, 118a contacts and pushes the spool 52 (page 43, line 10 through page 44, line 5; page 44, line 14 through page 46, line 2).

Claim 2 recites that the push rod 118, 118a is partially made of an elastic material, and claim 3 recites that the elastic material is a spring (page 45, line 2 through page 46, line 2).

Accordingly, Appellants note that in the embodiment depicted in Figures 8, 9a and 9b, the accumulator 36 accumulates *a pressurized braking liquid*, and the proportional pressure controller 110 controls the pressure of *the pressurized braking liquid*. Appellants further note that in the embodiment depicted in Fig. 9a, the push rod 118 moves between a

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first position *spaced from the spool 52* and a second position *contacting the spool 52*, and the push rod 118 moves in response to the stroke of the brake pedal 1 in order to contact and push the spool 52. Appellants further note that in the embodiment depicted in Fig. 9a, the proportional pressure controller 110 controls the pressure of the pressurized braking liquid *in accordance with the stroke signal and free from the motion of the push rod 118* before the push rod 118 contacts and pushes the spool 52, and *in accordance with the stroke signal and the motion of the push rod 118* after the push rod 118 contacts and pushes the spool 52.

**(6) GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL**

Claim 1 stands rejected under 35 U.S.C. § 102(b) as being anticipated by TAKATA (U.S. Patent No. 5,031,968).

Claims 2 and 3 stand finally rejected under 35 U.S.C. § 103(a) as being unpatentable over TAKATA (U.S. Patent No. 5,031,968) in view of LEIBER et al. (U.S. Patent No. 4,603,918).

**(7) ARGUMENT**

Rejection under 35 U.S.C. § 102(b) based upon TAKATA

In the Final Official Action, the Examiner rejected claim 1 under 35 U.S.C. § 102(b) as being anticipated by TAKATA (U.S. Patent No. 5,031,968). The Examiner stated the following:

“Takata shows a braking system in figure 1, as in the present invention, comprising: a brake pedal 1, a stroke sensor 2 that outputs a stroke signal in response

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to a stroke of the brake pedal; an accumulator 5 that accumulates a pressurized braking liquid; a proportional pressure controller 9, 10, 18, 13 that controls the pressure of the pressurized braking liquid, and supplies the pressurized braking liquid to a wheel, the proportional pressure controller including a spool 9; and a push rod 8 connected to the brake pedal 1 and movable between a first position spaced from the spool as shown in figure 1; and a second position contacting the spool, see column 6, lines 12-14, wherein the push rod moves in response to the stroke of the brake pedal in order to contact and push the spool; wherein the proportional pressure controller controls the pressure of the pressurized braking liquid in accordance with the stroke signal and free from the motion of the push rod before the push rod contacts and pushes the spool, see column 4, lines 29-42 and column 6, lines 8-20, and in accordance with the stroke signal and the motion of the push rod after the push rod contacts and pushes the spool, see column 9, line 60 to column 10, line 8.”

Appellants respectfully traverse the rejection of claim 1 under 35 U.S.C. § 102(b), and request that the Board reverse the decision of the Examiner.

*Proportional Pressure Controller Does Not Control Pressure Of Pressurized Braking Liquid*

Claim 1 includes, inter alia, “an accumulator that accumulates a pressurized braking liquid; a proportional pressure controller that controls the pressure of the pressurized braking liquid, and supplies the pressurized braking liquid to a wheel, the proportional pressure controller including a spool; . . . wherein the proportional pressure controller controls the pressure of the pressurized braking liquid”.

Appellants submit that TAKATA lacks any disclosure of a proportional pressure controller having a spool, which proportional pressure controller controls the pressure of *the pressurized braking liquid* (Appellants note that the “pressurized braking liquid” is defined in the claim as the pressurized braking liquid *which is accumulated in the accumulator*).

In this regard, Appellants note that the dynamic pressure piston 9 and integral master cylinder piston 10 in TAKATA control the pressure of the braking liquid in the *static pressure line* (i.e., the line to brakes 11). However, Appellants submit that *the braking liquid from the accumulator ACC* is only provided through the dynamic pressure chamber 7 to brakes 12. Note column 4, lines 43-52. Accordingly, insofar as the Examiner attempts to read the operation of the push rod 8 and the piston 9, 10 in TAKATA respectively on the push rod and spool recited in claim 1, Appellants submit that the piston 9, 10 (and any potential interaction between the push rod 8 and the piston 9, 10) at the most controls the pressure of the braking liquid in the *static pressure line* to brakes 11, and does not control the pressure of *the pressurized braking liquid from the accumulator ACC*, which passes through the dynamic pressure chamber 7 along the dynamic pressure line to brakes 12.

Accordingly, Appellants submit that TAKATA lacks any disclosure of a *proportional pressure controller which controls the pressure of the pressurized braking liquid* as recited in claim 1.

*Push Rod Does Not Move Between Positions Spaced From Spool and Contacting Spool*

Claim 1 includes, inter alia, “a push rod connected to the brake pedal and movable between a first position spaced from the spool and a second position contacting the spool,



wherein the push rod moves in response to the stroke of the brake pedal in order to contact and push the spool”.

Appellants submit that under normal operating conditions the push rod 8 of TAKATA does not move between positions spaced from the spool 9 and contacting the spool 9. In this regard, Appellants note that in TAKATA the push rod 8 is only disclosed as contacting the spool 9 when there is a *failure* within the braking system (i.e., a failure in the dynamic pressure line). Note the Abstract, lines 6-9; column 6, lines 9-20; column 8, lines 1-9. Further, in regard to column 9, line 60 through column 10, line 8 of TAKATA, Appellants note that this portion describes the purpose of the limit valve 18, and specifically a condition which would occur if the limit valve 18 were not provided. In particular, this portion of TAKATA describes how, under an excessive treading force, the push rod 8 would contact the spool 9 and create undue pressure resulting in brakes locking. However the limit valve 18 prevents such undue pressure and locking. Accordingly, Appellants submit that TAKATA can not reasonably be characterized as disclosing a push rod which moves between positions spaced from a spool and contacting a spool under normal operating conditions.

In contrast, Appellants note the push rod 118 shown in the embodiment of Fig. 9a of the present application, which moves between positions spaced from the spool 52 and contacting the spool 52 under normal operating conditions. Further, and contrary to the Examiner's statements in the paragraph bridging pages 3 and 4 of the Official Action, Appellants submit that the present claims are directed to embodiments of the present application in which the push rod contacts the spool without any braking system failure, such as the embodiment depicted in Fig. 9a.

Accordingly, Appellants submit that TAKATA lacks any disclosure of *a push rod which moves between positions spaced from and contacting a spool* as recited in claim 1.

*Does Not Include Recited Control Modes Of Proportional Pressure Controller*

Claim 1 includes, inter alia, “wherein the proportional pressure controller controls the pressure of the pressurized braking liquid in accordance with the stroke signal and free from the motion of the push rod before the push rod contacts and pushes the spool, and in accordance with the stroke signal and the motion of the push rod after the push rod contacts and pushes the spool.”

Even if TAKATA were to be interpreted as disclosing some contact between the push rod 8 and the spool 9 (presumably under some system failure condition), Appellants submit that TAKATA nonetheless lacks any disclosure of the recited *control modes of the proportional pressure controller*.

Assuming, arguendo, that the push rod 8 contacts the spool 9 under some system failure condition in the system of TAKATA, Appellants submit that there is no time during which the proportional pressure controller controls the pressure of the pressurized braking liquid *in accordance with only the stroke signal, and free from the motion of the push rod*. In this regard, Appellants submit that, since movement of the push rod 8 directly affects the volume of the dynamic pressure chamber 7 and the pressure of the fluid therein, there is *no time during which* the proportional pressure controller controls the pressure of the pressurized braking liquid in accordance with *only* the stroke signal in the system of TAKATA. In this regard, Appellants note that claim 1 clearly recites that the proportional pressure controller controls the pressure of the pressurized braking liquid *in accordance*

*with the stroke signal and free from the motion of the push rod before the push rod contacts and pushes the spool.*

Again assuming, arguendo, that the push rod 8 contacts the spool 9 under some system failure condition in the system of TAKATA, Appellants submit that, after the push rod 8 contacts the spool 9 (under some system failure condition), the proportional pressure controller would *no longer* control the pressure of the pressurized braking liquid in accordance with the stroke signal, since there would have been a failure in the dynamic pressure line, as explained above. Accordingly, it would appear that after such a system failure, the pressure of the liquid would be controlled in accordance with *only* the motion of the push rod 8 (i.e., by contact with the spool 9), and not *in accordance with both the stroke signal and the motion of the push rod*. In this regard, Appellants note that claim 1 clearly recites that the proportional pressure controller controls the pressure of the pressurized braking liquid *in accordance with the stroke signal and the motion of the push rod after the push rod contacts and pushes the spool*.

Accordingly, Appellants submit that TAKATA lacks any disclosure of the *control modes of the proportional pressure controller* as recited in claim 1.

Accordingly, Appellants submit that the rejection of claim 1 under 35 U.S.C. § 102(b) is improper at least for each and certainly for all of the above reasons. Appellants respectfully request that the Board reverse the decision of the Examiner to reject claim 1 under 35 U.S.C. § 102(b).

Rejection under 35 U.S.C. § 103(a) based upon TAKATA and LEIBER et al.

In the Final Official Action, the Examiner rejected claims 2 and 3 under 35 U.S.C. § 103(a) as being unpatentable over TAKATA (U.S. Patent No. 5,031,968) in view of LEIBER et al. (U.S. Patent No. 4,603,918). The Examiner stated the following:

“Takata’s braking system, as rejected in claim 1, lacks a resilient spring as a part of the push rod. Leiber et al. teach a restoring spring 35 in figure 3 in order to properly return the push rod 15 should the pressure in chamber 13 is inadequate. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Takata’s braking system to have included a restoring spring such as taught by Leiber et al. in order to properly return the push rod should the pressure in the dynamic pressure chamber is inadequate to return the push rod to an original position.”

Appellants respectfully traverse the rejection of claims 2 and 3 under 35 U.S.C. § 103(a), and request that the Board reverse the decision of the Examiner.

Appellants submit that the teachings of LEIBER et al. do not cure the above-noted deficiencies in the teachings of TAKATA with regard to the subject matter of claim 1. Appellants further submit that claims 2 and 3, which are at least patentable due to their respective dependencies from claim 1, for the reasons noted above, recite additional features of the invention and are also separately patentable over the prior art of record.

Appellants submit that the modifications suggested by the Examiner with regard to claims 2 and 3 would not have been obvious to one of ordinary skill in the art. Appellants submit that providing a restoring spring in the system of TAKATA, as suggested by the Examiner, would effectively *destroy the teachings* of TAKATA with respect to the disclosed benefits of its braking system and the preferred operation of the push rod 8, which receives

counterforce from the dynamic pressure in chamber 7. Note column 4, lines 38-42. In this regard, Appellants submit that TAKATA effectively acknowledged and dismissed the use of such a spring. Note column 1, lines 58-68: "As one solution to these problems, it has been proposed to control the relation between the treading force and pedal stroke by use of a spring. . . . But it is necessary to provide means for removing the reaction force of the spring in case the dynamic pressure line should fail . . . ." Accordingly, Appellants submit that TAKATA clearly *teaches away from* the modification suggested by the Examiner.

Accordingly, Appellants submit that the rejection of claims 2 and 3 under 35 U.S.C. § 103(a) is improper at least for each and certainly for all of the above reasons. Appellants respectfully request that the Board reverse the decision of the Examiner to reject claims 2 and 3 under 35 U.S.C. § 103(a).

**(8) CONCLUSION**

Appellants respectfully submit that the rejection of claim 1 under 35 U.S.C. § 102(b) over TAKATA is improper at least for each and certainly for all of the above reasons. Appellants respectfully submit that the rejection of claims 2 and 3 under 35 U.S.C. § 103(a) over TAKATA in view of LEIBER et al. is improper at least for each and certainly for all of the above reasons. Accordingly, Appellants respectfully request that the Board reverse the decision of the Examiner to reject claim 1 under 35 U.S.C. § 102(b), and to reject claims 2 and 3 under 35 U.S.C. § 103(a), and to remand the application to the Examiner for allowance.

Appellants respectfully submit that each and every pending claim of the present application meets the requirement for patentability under 35 U.S.C. § 102(b) and § 103(a),

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and that the present application and each pending claim are allowable over the prior art of record.

Should there be any questions, any representative of the U.S. Patent and Trademark Office is invited to contact the undersigned at the below-listed telephone number.

Respectfully submitted,  
M. YOSHINO et al.



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Daniel B. Moon  
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March 16, 2006  
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CLAIMS APPENDIX

1. (Previously Presented) A braking system comprising:

a brake pedal;

a stroke sensor that outputs a stroke signal in response to a stroke of the brake pedal;

an accumulator that accumulates a pressurized braking liquid;

a proportional pressure controller that controls the pressure of the pressurized braking liquid, and supplies the pressurized braking liquid to a wheel, the proportional pressure controller including a spool; and

a push rod connected to the brake pedal and movable between a first position spaced from the spool and a second position contacting the spool, wherein the push rod moves in response to the stroke of the brake pedal in order to contact and push the spool;

wherein the proportional pressure controller controls the pressure of the pressurized braking liquid in accordance with the stroke signal and free from the motion of the push rod before the push rod contacts and pushes the spool, and in accordance with the stroke signal and the motion of the push rod after the push rod contacts and pushes the spool.

2. (Original) The braking system according to Claim 1, wherein the push rod is partially made of an elastic material.

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3. (Original) The braking system according to Claim 2, wherein the elastic material is a spring.



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RELATED PROCEEDINGS APPENDIX

(None)

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EVIDENCE APPENDIX

(None)